SHALLOW TRENCH ISOLATION FILL BY LIQUID PHASE DEPOSITION OF SiO2

Abstract of the Disclosure

To isolate two active regions formed on a silicon-on-insulator (SOI) substrate, a shallow trench isolation region is filled with liquid phase deposited silicon dioxide (LPD-SiO_2) while avoiding covering the active areas with the oxide. By selectively depositing the oxide in this manner, the polishing needed to planarize the wafer is significantly reduced as compared to a chemical-vapor deposited oxide layer that covers the entire wafer surface. Additionally, the LPD-SiO_2 does not include the growth seams that CVD silicon dioxide does. Accordingly, the etch rate of the LPD-SiO_2 is uniform across its entire expanse thereby preventing cavities and other etching irregularities present in prior art shallow trench isolation regions in which the etch rate of growth seams exceeds that of the other oxide areas.